Rocks and Minerals

A Magazine for Mineralogists, Geologists and Collectors

Official Journal of the Rocks and Minerals Association

February, 1942

Vol. 17, No. 2 **25c** Whole No. 127

Mineral Specimens

Ward's success in supplying natural science specimens since Civil War days is due to the fact that this unique institution has always given dependable service while maintaining its prices at reasonable levels. This policy has enabled us to carry on through three wars and it will be continued through the fourth and greatest war. We have a large stock of splendid specimens, examples of which are listed below.

Gold, Bridge River, British Columbia. Gold, visible, in pure white quartz. Representative specimens priced for the average collector, sizes about 2x3" to 2x2", $5.00, 4.00 and 3.50; about 1x2" to 1x1", $1.50 and 1.00.

Galenobismutite, Cariboo Gold Mine, British Columbia. A rare bismuth mineral associated with cosalite and quartz with visible gold, specimens about 1¾x2" to 1x1" at $3.00, 2.50, 2.00, 1.50 and 1.00.

Copper, Mount Isa, Queensland. Specimens consisting of interlaced filiform crystals. Very odd examples of crystallized copper. Specimens about 2¾x4¾", $5.00; others in glass-topped boxes, about 2x3½" to 2x2", $2.50, 2.00, 1.50 and 1.00.

Labradorite, near Nain, Labrador. Polished slabs beautifully exhibiting gorgeous play of colors, sizes 3¾x7½x¾", $10.00; 4½x5½x¾", $7.50.

Witherite, Fallowfield, England. Good groups of white crystals. Witherite is the principal source of a barium compound used in incendiary bombs. Sizes are about 2½x3", $5.00; 2x3", 2.00; 1½x2", .75.

Precious Malachite, Belgian Congo. Compact, banded, excellent for cutting and polishing. In pieces that will run in size from one to two inches, $3.00 per pound.

Green Tourmaline, Brazil. A new lot of "pencils" of transparent green terminated tourmaline xls, sizes from ⅜x2" to ½x2" at $2.00, 1.50 and 1.00.

Calcium-larsenite, Franklin, New Jersey. A rare mineral now much in demand because of its brilliant lemon-yellow fluorescence under short wavelength ultra-violet energy, associated with willemite, hardystonite and franklinite. Examples average in size and price, 3x4", $3.00; 2x3", 1.25; 2x2", .85.

Fluorite, Weardale, Durham, England. Because of the great demand for this particular fluorite, due to its beautiful blue fluorescence, first class specimens are becoming scarce and are demanding increasing prices. Two choice specimens of purple cubes on hand measure 6x6", $7.50; 6x5½", $6.00.

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ROCKS and MINERALS

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ROCKS and MINERALS PEEKSKILL, N. Y., U. S. A.

The Official Journal of the Rocks and Minerals Association

Chips From The Quarry

IT PAYS TO ADVERTISE IN ROCKS AND MINERALS

In this issue of *Rocks and Minerals*, Mark M. Foster, America's most noted opal miner and one of our valued advertisers, offers some words of wisdom to mineral dealers in general and beginners in particular. That his advice will create a most favorable impression goes without saying as he is not only speaking with much authority backed by years of experience but he has a large clientele of collectors and dealers to draw on for facts. We hope, therefore, that every mineral dealer in the country will read Mr. Foster's very timely message and will profit therefrom.

The slogan "It pays to advertise" is an ideal one. No matter whether one is a mineral dealer, a manufacturer or an author, if he does not receive publicity, regularly, in one form or another, he is soon forgotten or ignored. We know of many instances where collectors, having accumulated a substantial stock of minerals, invested only 50c or $1 in a small ad and then sat back expecting a deluge of large orders; none coming they gave up in disgust and went out of business.

No matter what business one may engage in and especially if he is a novice, it generally takes many years of hard work, discouragements, bad investments, poor seasons, but—if he perseveres, keeps his courage up, is honest and fair to his customers, he is bound to succeed in the end. Minerals are no exception and anyone desiring to deal in them as a career must face the same problems and obstacles. There are a number of advantages in minerals over that of many other branches of business. Minerals do not demand a large outlay of capital as many can be collected in one's area free of charge, advertising rates are most reasonable, and the business can be carried on in one's home. But the dealer must have some knowledge of what is demanded of him, he must know minerals and their values, and he must have patience, perseverance and courage to carry on.

Peter Zodac

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Whole No. 127

A GREEN SAPPHIRE FROM SIAM

By ROBERT W. FAUSEL

Having just arrived in Bangkok, Siam (Thailand now) from Hanoi, French Indo-China, a few days before via the smooth running KLM airline, I was, as usual, spending the evening wondering about the bazaars and native stores. One old man, a jewel merchant, and I had become quite friendly during the past several days because of the fact that I always stopped in his store to admire his amethysts, sapphires, rubies, and zircons. Despite my failure to buy anything, he always tried to prolong my visits by showing me all his wares. Perhaps he was lonely, or perhaps he thought I might eventually buy something. At any rate, we finally became friends to the extent that a Mohammedan will have a Christian for a friend.

The old man told me about part of his early life. This was in the summer of 1939; he was 92 years old. I believed him because he showed me his birth certificate, tattered around the edges and brown with age. He was born in a French colony of Africa and looked like an Arab, dark, sharp featured, and with very piercing black eyes. His father had been an Arab, his mother a professional entertainer from France.

In early life the old man had gone to sea, had dived for pearls and had been general assistant on any of the million jobs around the waterfront. At forty, he owned and commanded his own pearler, supplying pearls to a French concern but not managing to get very rich in the process. Finally, in 1890, he went to Singapore and became employed by a jeweler there. Later migrating to Bangkok, he set up his own jewel shop and, through the good will of Allah, prospered to become a wealthy man of ninety-two.

I mention the old jewel merchant's background only because I want to bring out the fact that it was only through my friendship with him that the Green Sapphire (Corundum, to you specialists) came to my attention. One evening

The old jeweler of Bangkok

while swapping experiences with him, I asked my old friend what his most valuable piece was. Without a word, he went to his safe and brought out a green sapphire, the size of which I had never seen. As a matter of fact, I had never before seen a green sapphire, much less one in the rough. The stone he brought out was five and one-half inches from tip to top, three and a quarter inches wide, and an inch and a half thick, and weighed roughly three pounds. It was contained in a yellow silk bag with draw strings which, in my opinion, added to its appeal. Holding it to the light, I could see through it. Several sections were clear as glass, but the rest somewhat milky.

The old jewel merchant told me the story of the stone. In 1870, the stone was found by Naih Scyae in a cave, embedded in solid rock. (The cave was at Tchande, Budhir) (pronounced Chanday, Boo-deer). Naih Scyae chipped it off and treasured it as something which would make him and his family of great wealth. Evidently, his asked price was too high and so, upon his death, it was left to his son. Naih Scyae's daughter-in-law sold it to my old friend for 13,-00 ticals* shortly after her husband's death, in 1936. The old jeweler kept the stone from then until the time he turned it over to me. He said that he had one offer of 15,000 ticals from a Chinese merchant who wanted the stone for a carving of Buddha. Knowing the trade characteristics of Eastern dealers, I am prone to believe that the offer was slightly exaggerated. Asking why he had not sold the stone for 2,000 ticals profit, he told me that he hoped to get much more in European or American markets.

Our discussion ended by my agreeing as an agent to take the stone on a commission basis for sale in the United States. To show that I was responsible, a friend of mine in Bangkok agreed to sign a bond for 1,000 ticals, guaranteeing that I should either sell the stone at a minimum price agreed upon by my old friend or return it intact.

Next day, we took it to the American Consul in Bangkok and were assured that uncut stones could be taken into the United States duty free. Then followed several months of troublesome watching of my briefcase. Everytime I set it down, I thought of my green sapphire reposing inside and the 1,000 ticals it represented if I lost it. Finally, after business took me to Singapore, the Dutch East Indies, and Hongkong, I boarded the Clipper for the United States.

Once again at home, the first place I thought of with regard to my green sapphire was the Smithsonian Institution. A trip to Washington on other business gave me an opportunity to contact the well-known mineralogist ,Mr. E. P. Henderson, of the Smithsonian. Mr. Henderson regarded my green sapphire a crystal of corundum. This in itself deflated me greatly because I considered "green Sapphire' 'sounded much more interesting.

Mr. Henderson had the stone weighed and found that it was 1292 grams. He agreed that it was an exceptionally fine piece of corundum, but his offer in price was not at all consistent with my hopes and expectations. The "green sapphire" was described to be a twin crystal with the twinning plane parallel to the face shown in the photograph.

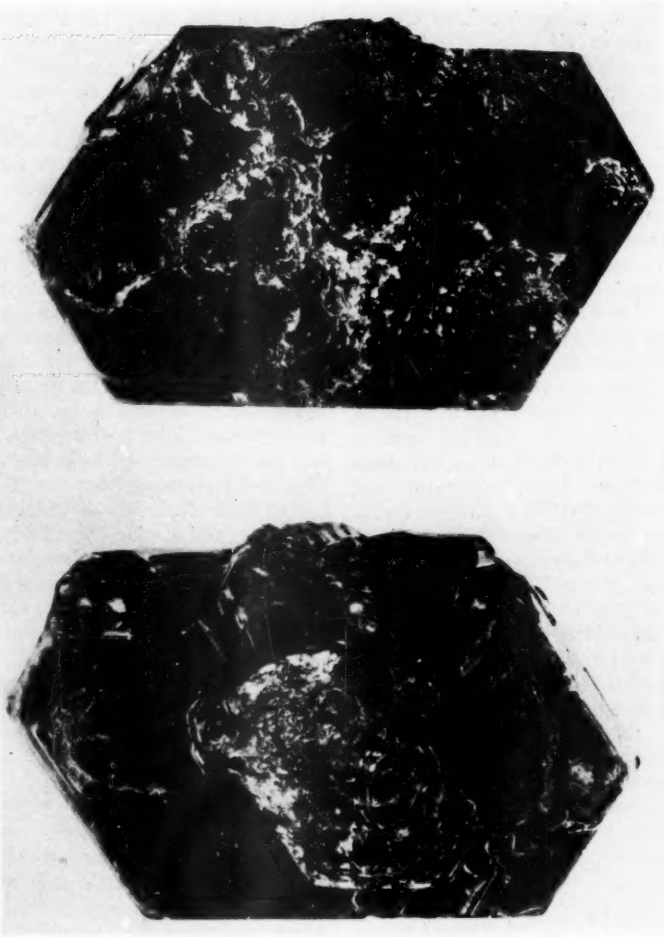
Still hoping to make a sale, I obtained a number of names of collectors and museums as prospects.

Not being able to make the round of these prospects, I saw only a few. Their offers were much lower than I wished to accept and, queerly enough, the highest was only a quarter of the price guaranteed by an independent dealer in New York. As a result, I tired of playing with my "green sapphire" and returned it to Thailand via register mail.

I hope my ancient and respected friend the jewel Merchant, of Bangkok, relishes the return of the "green sapphire": that the nights he looks at it and fondles it

*A tical is a Silver Coin worth about 26c.

make his life more happier; that the thought of wealth for his sons and his grandsons brings comfort. Such value cannot be measured in dollars; it must be measured by the soul.



The green sapphire from Tchande, Budhir, Siam

(Reduced about ½)

Photo shows top and bottom faces of crystal

MISSOURI IRON—PILOT KNOB

By CLARK HARRISON

Special Correspondent for Rocks and Minerals

During the summer of 1940 the invigorating warmth of California's sunny days caused my thoughts to turn back to the summers in Old Missouri, where, as a boy, I used to scrap lead ore from the dumps of shallow mines, long since deserted and forgotten. Those small pieces of galena (lead ore), which ranged in size from that of a pin head up to two or three pound chunks, I saved and sold in the nearby town of Sullivan for four cents a pound. Later, when I was large enough to work, I did quite a bit of mining for iron (hematite) and lead (galena), for these ores were abundant around my home, in Crawford county of Eastern Missouri.

It had been eleven years since I had left "Misery" and got stuck in a rut in California. I longed to visit my home in the Ozarks—"the land of a thousand smiles"—to roam those hills again; and even do some shallow mining to recondition myself. I longed to visit "Old Scotia", a few miles away in the hills, where once a city thrived, the miners mining out iron ore from the huge "iron bank" and smelting it into pigs for shipment from the railroad town of Leasburg, six miles away. I also longed to visit Iron Mountain and Pilot Knob, both great iron mining districts, once rich in mining lore and romance, but today deserted and nearly forgotten. The "breaks" came my way and I managed to get away for a month, to spend a very happy vacation at the old farm (where my mother still lives) between Sullivan and Bourbon, Missouri.

Missouri is famous for its lead mines at Joplin and Flat River—in fact the Flat River District in eastern Missouri is the biggest lead producing district in the world. Joplin is a paradise for mineralogists, for here is to be found an abundance of minerals and nice crystal specimens: Large calcite crystals, galena with nice pyrite crystals, iridescent sphalerite, marcasite, etc. The principal minerals mined in this state are barite, pyrite, limonite, hematite, sphalerite and galena. Some gold has been discovered, and silver was mined in early days by the French, in the southeastern part of the state.

Missouri Famous for Caves

Missouri is also famous for its big caves, most of them formed by solution action of percolating surface waters. The Onondaga Cave near Leasburg presents some beautiful and weird formations and an underground river. Near Stanton is the Meramec Caverns, a four story type of cave. Near Bourbon is the Onyx Cave, where years ago father helped remove tons of beautiful onyx, after which it was found to be worthless for cutting and polishing since it had been shattered, possibly by earthquake action. This cave contains hundreds of large, glistening stalactites, and a lake. South of Springfield is the Old Spanish Cave, and south of Neosho is the Bluff Dwellers Cave, each with its attendant lore. Caves are numerous in this limestone country. There are many sink holes in various parts of the state, caused by cave-ins or by enlargement, through solution, of joints leading from the surface to underground channels.

Types of Iron

The state abounds in huge "iron banks" or iron ore deposits, and tons of "float" iron may be picked up in many localities. In early days many of these larger deposits were worked extensively, and there were smelters at Iron Mountain, Pilot Knob, Argo, Meramec Springs, Sligo, and other points. None of them are active today, but some ore is being produced in some parts of the state and shipped to Ohio and Alabama.

Many types of iron ore occur within the iron-bearing regions of the state:

(1) Hematites of the Carboniferous and Silurian periods, including the undeveloped deposits occuring in these formations; (2) Brown ores, including the deposits of primary and secondary limonites in the southeast and southwest Missouri; (3) Hematites of the filled sinks, including the Central Ozark District ores; and (4) Specular ores in porphyry, including the St. Francois Mountains deposits.

Missouri's Iron History

Marquette first discovered iron in Missouri in 1673, on the river banks just north of Apple Creek, in the southeast corner of Perry county, (S. E. Missouri). The first iron ore smelter was at Ashebran Furnace in 1815, the ore being specular hematite, coming chiefly from Shepard Mountain.

Large deposits of iron were opened at Iron Mountain and Pilot Knob between 1845 and 1850, and for 30 years after, Missouri became an important iron center of the world. When these deposits began to play out, and the price was brought down by the opening of the rich Mesabi iron range in the Lake Superior District, work practically ceased.

Before 1850 and up to 1911 Missouri produced 9,134,624 gross tons of iron valued at $32,576,049. The largest iron ore deposit in the state was at Iron Mountain, in the southwestern part of St. Francois County, which is accredited with an output of 3½ million tons. First opened in 1845, its biggest annual output was 269,480 tons, in 1872. Tremolite and apatite are abundant there.

Five miles south of Iron Mountain is Pilot Knob, in the northeastern part of the adjacent Iron County, second largest iron producer in the state. It is accredited with an output of 1,580,000 tons. Though it was first entered in 1835, active mining did not start until 1848. The first furnace was built there at that time, and the mine was worked continuously until 1890, when it was abandoned as worked out. The reserves were proven by diamond drilling, small scale operation continuing at various times. It was closed, however, to high grade ore in 1892. In 1910 the Puxico Iron Company leased the property and worked it for a short time, washing the soft, conglomerate ore on the mountain's north flank. Since then it has been inactive, and a memory of the good times that were.

Pilot Knob is a cone shaped, nearly circular, porphyry mountain, and except for a low, narrow neck of porphyry connecting it with a range of mountains on the east, it stands alone, nearly surrounded by Cambrian sediments. It has a basal diameter of three-quarters of a mile and rises 600 feet above the surrounding valley. This valley to the east is known as Beautiful Arcadia Valley; it is surrounded by blue, hazy, well-wooded hills, contains Killarney Lake, and is noted as a resort country, especially by tourists from St. Louis. Pilot Knob's elevation is about 1500 feet above sea. The surrounding peaks are: Buzzard Mountain (N), Cedar Hill (NW), Shepard Mountain (SW), and Taum Sauk Mountain (SE), highest point in Missouri, being 1808 feet elevation. All have reddish brown porphyry, similar in occurrence.

The iron ores here are in porphyry and was found by outcrop. Mining was carried on by open pit method, shafts and tunnels. Near the crest of the mountain, the big cut, whose maximum thickness was about 140 feet, exposes a variety of porphyritic and iron-bearing beds, representing all stages of gradation from a high grade, thinly laminated, specular hematite on one hand, to a coarse, porphyry breccia or massive, red porphyry on the other.

The formation consists of four distinct lithologic divisions between which there are zones of termination. These divisions, in descending order, are (1) Ferruginous porphyry breccia (formerly called conglomerate), 100 feet thick. Most characteristic phase consists of angular to sub-angular fragments of light, colored porphyry and felsite imbedded in a fine grained, dark colored, siliceous hematite matrix; (2) Upper ore bed, 10

to 30 feet thick, the ore being thinly banded, fine grained, bluish-gray hematite, of 45 to 50% iron and 15 to 20% silica. Quartz and feldspar are disseminated through the ore; (3) Lower ore bed, 6 to 30 feet thick. Ore consists of a very hard, compact specular hematite of a bluish-steel-gray color; (4) Footwall porphyry, which outcrops into roughly bedded porphyry, weathering to a rough, sperulitic surface and has been described by some as a devitrified pearlite. As I scribble this I have before me two interesting specimens from there: A bluish-gray hematite with large distinct crystals of quartz and feldspar dissminated through it; and a large piece of red hematite, capable of taking a fine, jasper-like polish.

Origin of Formation

This formation underlies an area of opproximately 400,000 square feet, and 200 feet thick. The ore is found as vein ore, boulder ore and conglomerate ore. In general, the ores are regarded as having been deposited from hot, iron-bearing solutions as an after effect of the porphyry extrusion, the solutions coming from the porphyry itself or from a source common to that of the porphyry. The more or less complete replacement and infiltration of stratified tubaceous beds by iron oxide is represented by interstratified layers with porphyry breccia. The ore, though not appreciably magnetic, has martite in it.

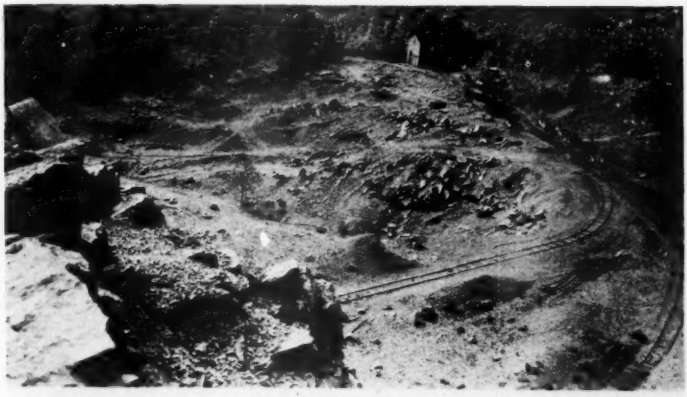
The Devil's Icebox

The day we visited Pilot Knob, we drove up a wooded slope, over a long, straight, rocky road, and parked the car right in front of the cut at the crest. A chilling, icy-like stream of air issued out of the cut, which was narrow at the entrance. Once inside, it opened up into a huge rocky pit of reddish and bluish porphyritic rocks. On the right was a large cave, called The Devil's Icebox, and this was where the cold air draft came from. Though it was 90 degrees outside of the cut we shivered in the cold that issued from this cave. We were told that it remains 42 degrees in the Icebox the year round, even in summer when it reaches 110 degrees outside sometimes. This cave has been explored back to a distance of 7 miles. Three miles back, the light from the outside shines through the earth among the rocks.

Civil War battle of Pilot Knob

Outside of the cut a good view of the valley below and to the south may be had. Immediately below, is a circular clump of trees, which was where Fort Davidson once stood, and here the famous Battle of Pilot Knob was fought on September 26-27, 1864. The breastworks can still be seen, and cannon balls have been found in the surrounding field. Here, the Federal forces under Gen. Ewing repulsed the attacks of the Confederates under Gen. Sterling Price for two days. Except for the valley, the mountains were well covered with hardwoods

In the lower cut at Pilot Knob showing the Devil's Icebox.



Top—Open pit of Pilot Knob as it appears today.
Center—Close-up view of Devil's Icebox at Pilot Knob.
Bottom—The clump of trees in center of photo near highway is the site of Fort Davidson.
Highest point on horizon to left is Taum Sauk Mountain.

and the Confederate soldiers were hidden on the wooded slope to the southeast. On the second day re-enforcements arrived for the Confederates, and they sneaked around behind the slope, crossed Arcadia Valley, entrenched themselves on Pilot Knob, and began dropping their cannon balls right down inside the fort. Gen. Ewing blew up his powder magazine and retreated to Leasburg over the trail that is now state highway 21, running through Caledonia. There is a gentleman in the little town of Pilot Knob who has a collection of uniform buttons of both armies, rifle bullets, cannon balls, grape shot, and other relics, which are being plowed up constantly in the field surrounding the historic spot. And, I might add, that not far away from this spot is where Gen. Grant received his commission in the army—a fact that Missouri people are very proud of.

Crawford County, Missouri

My home county, Crawford, once ranked third county in iron production, having an accredited output of 1,408,125 tons. The ore is mainly of red and specular hematites, with some secondary limonite. There is much "float" hematite lying on the surface in confusion, and I know of several huge "iron bank" reserves. If the war continues, so as to bring up the price of iron to where working these smaller reserves will pay, we may again see smelters rebuilt, and "them thar Missourie Hills' full of activity again, echoing to the songs of the puddlers going to work!

Iron Production

Since iron forms about 5% of the earth's original crust and is fourth in abundance of minerals, nearly all countries in the world produce it or have it. The world's greatest producing region is the Lake Superior District, mainly in Minnesota and Michigan. Iron has been produced in greater quantity and is freer of troublesome elements (as phosphorous, silicon, sulphur, aluminum, etc.) in the great open pit mines of the world-famous Mesabi iron range just north of Duluth, Minn., than anywhere else in the world. Last year the Lake Superior District produced about 84% of our iron. Alabama and Pennsylvania are large producers, also. Germany is the world's second largest producer. Other important producers are Brazil, Cuba, Nova Scotia, England, France, Spain and Russia.

Early estimates place the 1940 iron output of the United States at 73,695,899 gross tons (the steel industry operated at about 80%). The value of the ore shipped from the mines is estimated at $189,086,799. The average value of the ore at the mines was around $2.51 per gross ton.

World production of iron ore in 1939 was 162,000,000 metric tons, the United States supplying something like 32% of it, and consuming 51,721,369 gross tons of it. In the United States employment was given to 22,000 men who got in 39,000,000 man-hours in iron ore production.

Using high temperatures in a blast furnace, the oxide is smelted with carbon (coke) and flux (limestone). When the products are removed from the furnace, either as liquid or gas, the heavier liquid iron settles to the bottom from the lighter liquid slag, and each are drawn off separately, the iron being cast into cast iron bars or treated immediately in a furnace for removal of such impurities as silicon, carbon, phosphorus, sulphur, etc. Then the desired additions such as manganese, carbon, etc., are made, resulting in steel fabrication.

Missouri Production

In 1939 Missouri produced 39,239 gross tons of ore, which averaged 52.51%, being comprised of both hematite and brown ore. Twelve active mines and an undetermined number of small mines and pits were producers, and both open pit and underground methods were used. The ore was shipped to nonferrous smelters as well as to cement, steel and paint plants. The producing counties were Crawford, Dent, Carter, Butler, Howell,

Franklin, Oregon, Wayne, Shannon, Phelps, Pulaski and St. Francois.

There is plenty of iron ore in Missouri. The reserves of Pilot Knob, the hematite ores of the filled sinks, large untouched outcrops known as "float", and many huge deposits known as "iron banks", are awaiting development until higher ore prices make working these smaller reserves profitable.

COLLECTING IN RHODE ISLAND

By WILLARD STONE WINSLOW, JR.

Many people, collectors from out of state and non-collectors from home, have frequently asked me if it is worthwhile to collect rocks and minerals in my state of Rhode Island at the present time. My answer in all cases has been an emphatic yes. At the present time there are numerous improvements being made in sanitation and highway construction all of which require excavation to a large degree. There are many quarries, too, some in operation, and a number of abandoned mines, all of which furnish interesting minerals.

In the town of Cumberland is the well known Iron Mine Hill which produces cumberlandite, serpentine, asbestos and ilmenite. At Diamond Hill, the famous locality still produces fair to good quartz varieties from time to time, especially at the blasted area. At Copper Mine Hill one may find chalcopyrite, malachite, azurite, and magnetite, also epidote, it is mostly of poor quality, however.

In the town of Lincoln the famous Harris lime pits are once again in partial operation after being idle for about 50 years. The ledges are being constantly blasted for use as fill in the vast project of road construction in the area. Louisquisset Pike, which passes by the lime pits, is being widened for use as a military highway. The famous mineral "bowenite", a variety of serpentine found only at this locality, may now be obtained at the eastern ledge across the dirt (Wilbur)) road in the "snow-white" marble or crystalline limestone. Granular blue marble and an attractive serpentine in green and yellow veins in marble is also obtainable in the ledge nearest the main highway (Louisquisset Pike). Molybdenite and galena may be found in the excavation further up the hill, to the north. The Dexter lime pits north of Saylesville are in continuous operation and a landslide caused by a dynamite discharge this past summer produced calcite, quartz and dolomite. There is also an abundance of dendrites and graphite in the "marble".

On the opposite side of the City of Providence, in Cranston, is the Sockanosset Coal (graphite) Mine which furnishes asbestos, fibrous quartz, fern fossils and hematite. In the village of Arlington is the long abandoned Fenner Graphite Mine furnishing today the same minerals as the other graphite mine but in poorer quantity and quality. An excavation on the top of the mine last fall for a sewerage installation yielded some good material. The localities in Cranston and Lincoln may be reached by bus lines from Providence.

If the collector has any luck he may find deep colored pink granite at the quarries in Harrisville and Burrilville. Durfee Hill in Glocester may yield chalcopyrite and epidote. Near Foster Center, Foster, ilmenite may be found.

Two years ago in the town of North Providence, a place usually overlooked by surveying geologists and collectors, a wide variety of minerals were found including talc, asbestos (mentioned in the March, 1940, issue of *Rocks and Minerals*, p. 80, as being 14 inches long), pyrite, calcite varieties, smoky quartz, ilmenite, actinolite, tremolite, epidote, etc. Most of these minerals were found in the excavations for a sewer which covered the entire town. A series of field trips by the author and the writing of a report has recorded the town's geology for posterity.

MORE ABOUT LOCATIONS

By R. NEWTON MAYALL

Member Locations Committee, Boston Mineral Club

Certain changes have occurred since my previous account of the work of the Locations Committee of the Boston Mineral Club was published in the June, 1939, issue of *Rocks and Minerals*. The major change has been in the addition of a card index system to supplement the three large volumes which contain a complete set of United States Geological Survey maps of the six states of the New England area. The purpose of the maps was to locate a mine or quarry accurately in such a manner that anyone could find it; and by means of interleaving the maps, the names of localities together with lists of minerals available could be written without destroying the maps.

Although the maps contain practically all that one really wants to know about a locality—where it is, name, and minerals found—that information is not enough, as any organization will soon find out if many field trips are made; or for that matter, the individual will soon find it out. At least we have felt it necessary to provide more information than can be obtained from the maps alone—such data as the name of the owner, how you gain admission, activity at the mine, and so forth. That is the real function of our supplementary card index; but we also found it advisable to include on the cards all the information that appears on the maps, thus making the cards complete in themselves, for many will not have to refer to the maps for the location. Those who are unfamiliar with the locality would of course inspect both maps and cards. Each location on the maps has a corresponding card; and each card bears a reference to the map on which the locality is indicated.

This dual system enlarges the scope and the value of the maps. For example—in the beginning we intended to indicate only those localities where material was known to be available; but now we can enter an historic location, so marked and with a simple reference to "see card index" where all the data concerning it can be found. In this way, the primary purpose of the maps is maintained without including data which may seem superfluous to the majority who use the maps, yet at the same time those who are interested in historical data can find it easily.

For the benefit of those who may have a similar project in mind, a sample card is reproduced. Seven hundred and fifty cards were printed in outline form, as shown. The cards are standard size—5 x 7 inches. They are separated according to state and then arranged alphabetically by towns.

Strange as it may seem, some of the most important information is not about the location or the minerals available, but rather who owns the mine; is it open Saturdays and Sundays; is there a charge for admission; and so forth? By placing such data at the top of the cards, it is possible for one to determine quickly, by just thumbing the cards, whether the localities in the area to be visited are open to collectors. Let's look over the sample card.

On the first line is the name of the city or town (left) where the mine or quarry is situated, and the state (right), together with the number of the map (middle) on which the location is marked. The next two lines give, first, the name of the quarry (name given locally and outside, or both) and the mail address; second, the name and address of the owner.

The fourth line contains information that is becoming more and more important—that is, if you want to stay in the good graces of the mine owner. Here we indicate whether admission is gained by letter, on certain days only, whether you

should ask permission when you arrive (and before entering), or whether you can just walk in (trespass without getting anyone upset). My personal opinion is that all mineral collectors (particularly amateurs), should go just as far out of the way as possible to notify owners of their desire to collect minerals. Remember, you are collecting on someone else's property.

Under the heading "location" we enter a brief description of the relation of the quarry to nearby easily accessible and easily recognized places. An example—On north side main highway (U.S. 2). One mile west of Leadville. On road to Magnetite.

As you can see, such a notation gives only the relation of the locality to nearby outstanding landmarks. In order to learn the actual location of a quarry, one should always refer to the map indicated on the card. Every mineral collector, before he starts on a trip, should provide himself with a U. S. Geological Survey map (scale 1 inch equal 1 mile) of the area he plans to visit. These maps may be obtained from the Director, U.S. Geological Survey, Washington, D. C., at a cost of 10 cents each (less in quantity), or from most large stationery and book stores for slightly more. Then those who have access to Locations Maps such as ours can mark the exact locations of quarries in the area, on their own maps. Furthermore, if you like to use latitude and longitude for location purposes, the easiest, simplest, and most accurate method of obtaining these coordinates is to use the USGS maps. It is folly to determine latitude and longitude from atlases, road maps, and the like.

The next item, "activity", refers to whether the mine is in operation, and if so for what purpose; and if idle, when it was last worked.

Sufficient room has been allowed for entering 30 or 40 minerals. The date that appears at the right of the line headed "minerals", refers to the date of the list. Except in rare instances, the dates are of the last three or four years and the minerals listed were found at that time.

The last item, "remarks", includes any pertinent supplementary information such as the presence of fluorescent minerals and their names; also references to the literature of the locality.

Our dual system has been in use for a year. So far it has worked out satisfactorily. Perhaps it is not as complete as some would wish, but then again perhaps some would consider it too much. We believe it is simple, straightforward, easy to keep up-to-date, and we have designed it with the idea of making available sufficient basic data to satisfy all.

BOSTON MINERAL CLUB — LOCATIONS

Town (Map No.) State

Name

Owner

Admission

Location

Activity

Minerals (* = Extra Good Quality) Date

Remarks

AN APPARATUS FOR DEMONSTRATING THERMOLUMINESCENCE

By M. ALLEN NORTHUP
Morristown, N. J.

Probably one of the chief reasons why thermoluminescence in minerals does not command the same amount of interest as fluorescence is that it is so difficult to show off to advantage. The usual procedure is to heat a few fragments of suitable mineral in a test tube or a large spoon over a gas flame. The resulting thermoluminescence is usually far from spectacular, first, because the specimen heated is far too small to give out much light; secondly, because the thermoluminescence is partially masked by the light of the gas flame, and thirdly, because decrepitation often causes the specimen to be lost just at it is beginning to glow. This hardly compares with the show that can be put on for one's friends by inviting them to see a large cabinet full of fluorescent minerals.

In the course of an investigation of thermoluminescence in minerals[1] the writer finally hit upon a simple piece of equipment that would overcome the above mentioned difficulties, making it possible to demonstrate the phenomenon to a group, or to put on a good little show for the neighbors. It is shown in the accompanying photograph.

The principal part of this apparatus is an electric hot plate designed for use with a Silex coffee maker. This was found to heat up more rapidly than any other type of hot plate obtainable, and since my small daughter had broken the Silex, was available at no extra cost. The matter of rapid heating is important for best results because the brilliance of thermoluminescence, other things being equal, depends on the rate of heating and the temperature attained. Apparently the same amount of light is produced whether the specimen is heated slowly to a low temperature or rapidly to a high temperature, but in the latter case the light given off is more intense although of shorter duration.

Since the resistance coils in this type of heater are exposed and get hot enough to give off considerable light, they are covered with a piece of steel plate 1/10 inch thick and 4 inches in diameter (the outer diameter of the porcelain coil holder). This very effectively cuts off all light from the heating coils; so that the thermoluminescence can be observed in complete darkness.

The next problem was to prevent loss of the specimens by decrepitation while they were being heated and incidentally, to prevent their being momentarily cooled by draughts. It was finally found that inverting a 30 cubic centimeter size pyrex glass beaker over the specimen accomplished this admirably. These beakers can be obtained for a few cents from any scientific apparatus supply house[2] and appear to stand heating indefinitely. It was also found that they add to the brilliance of the thermoluminescence effects obtained as any specimen that decrepitates flies up, bounces off the top of the beaker, and lands back on the hot plate in very small pieces which heat through instantaneously and glow with great brilliance for a moment. The whole effect is like a shower of colored sparks and is clearly visible through the glass

In use, a quarter to half a teaspoonful of mineral fragments about 1/8 to 1/4 inch in diameter are placed on the plate and covered with a beaker. The heater is then plugged in and the lights turned off while the spectators sit back to watch the fun. Since the hot plate is big enough to hold three or four beakers at once, a mineral that gives a different colored thermoluminescence can be placed in each one, adding to the beauty of the effect. With the amount of mineral recommended a very fair amount of light is produced which, together with the pyrotechnics obtained during decrepitation, makes a most attractive demonstration.

For display to a seated audience the

hot plate, or several of them at once, can be placed on a table with a large mirror behind them and inclined slightly forward.

As to minerals which are thermoluminescent this, like fluorescence, has to be determined by trial. However, a few common examples can be mentioned:—

Fluorite: In general any fluorite having blue fluorescence, will also have a bluish thermoluminescence. Manganiferous fluorites (from Franklin, N. J. and Trumbull, Conn.) produce an intense green on account of which they have been given the varietal name of chlorophane.

Many other fluorites show a change of color as the temperature rises, passing in turn, through green, yellow, blue or purple and sometimes back to the first color again.

Calcite: Practically all calcites show a more or less intense orange yellow thermoluminescence and most of them decrepitate.

Other Minerals: Kunzite, pectolite, some scapolites, and some apatites also give a yellow; amblygonite a pale blue, Chilean, lapis lazuli a dirty yellow green; hackmanite from Bancroft, Ontario, a very strong yellowish green, lepidolite a faint orange red.

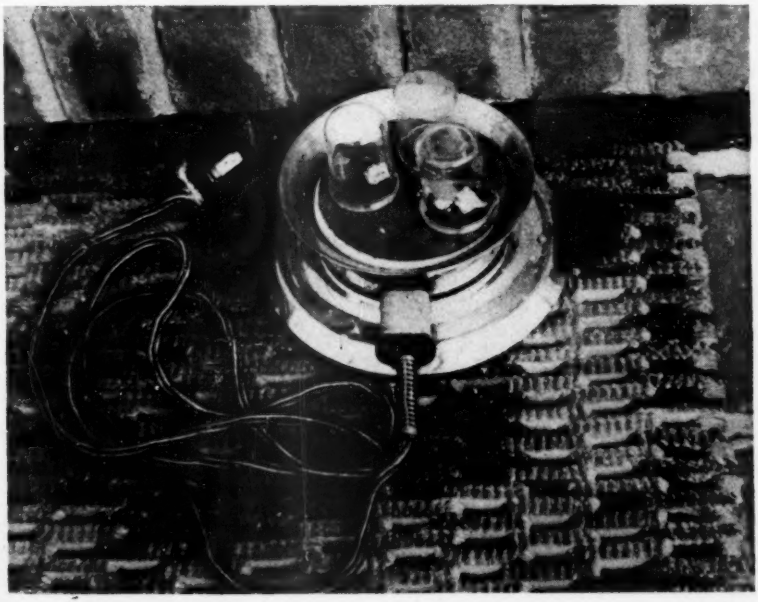
1 "Experiments on the Thermoluminescence of some Common and Unusual Minerals." M. Allen Northup and O. Ivan Lee, *Journal of Optical Society of America*, 30, 206-223, (1940).

2 Suggested firms include:
Central Scientific Co.,
1700 Irving Park Road
Chicago, Ill.

Fischer Scientific Co.,
709 Forbes St.,
Pittsburgh, Pa.

Scientific Glass Apparatus Co.,
Bloomfiield, N. J.

Arthur H. Thomas Co.,
Philadelphia, Pa.



The Silex "hot plate," with the thermoluminescent minerals, all ready to be plugged in. Note that each mineral is covered by a pyrex glass beaker.

THE FIRST EAST INDIAN EVER TO VISIT THE ARCTIC WRITES A BOOK ABOUT HIS EXPERIENCES THERE

Latest addition to the Memoirs Series of publications issued by Field Museum Press is "The Upper Ordovician Fauna of Frobisher Bay, Baffin Land," by Dr. Sharat Kumar Roy, curator of geology.

Unlike most technical scientific publications, usually prepared for consumption by an esoteric circle of scholars, this quarto-size volume of 212 pages is in large part devoted to a lively account of the day-by-day doings of the members of the Frederick H. Rawson Expedition to Labrador and Baffin Land, which under the leadership of Commdr. Donald B. MacMillan, U. S. Navy, collected specimens for the departments of anthropology, botany, geology and zoology of Field Museum of Natural History, Chicago, Ill. Although this expedition, on which Dr. Roy was staff geologist, conducted its work during the fifteen month beginning in June, 1927, this book is the first detailed narrative to be published. Other researches and duties at the museum prevented him until the last year, from preparing his manuscript. Dr. Roy has now related the many human interest incidents which occurred during the explorations of the frozen north made by himself and fourteen associates. The book is illustrated with 146 collotype plates.

Mosquitoes worst pest of far north

The average stay-at-home reader's concepts of the hardships of Arctic exploration are apt to receive a startling jolt from the following paragraph in Dr. Roy's book:

"At dawn on July 8, Battle Harbor, Labrador, was sighted. We steamed past it and anchored in Assizes Bay. Now, for the first time, we encountered the dreaded mosquitoes and black flies! It is well to emphasize here that they are far more formidable a menace than is usually believed. Although we were equipped with the best-known protections against these horrible pests, none proved equal to the situation. Of the two evils of the North—mosquitoes and flies in summer and bitter cold in winter—the latter is by far the more bearable."

It may be noted, in passing, that Dr. Roy is a native of India, and was accustomed to a semi-tropical climate until he reached manhood. In fact, so far as is known, Dr. Roy is the only East Indian ever to have gone into the Arctic regions. He completed his undergraduate studies abroad and at the University of Illinois, later receiving his degree of doctor of philosophy from the University of Chicago.

Doubt cast on "Viking Ruins"

On Sculpin (or Kanaiotok) island, supposed Norse ruins were investigated. "It is commonly believed that this island was settled by Norsemen some 900 years ago and that the ruins found there might be Norse," writes Dr. Roy. "A survey of the ruins and examination of the artifacts, however, led our anthropologist, Dr. William Duncan Strong, to conclude that the site represents as early Eskimo spring or autumn camp of the Thule culture rather than an early attempt at colonization by the Vikings."

Tragic life of Naskapi Indians

On arrival in Anatalak Bay the expedition made first contact with the Naskapi Indians. "Rarely, in North America today, can one get the thrill that comes with the first sight of a Naskapi, for the Naskapi are truly wild Indians, living by the hunt as their ancestors did before them. From Northwest River to Ungava Bay, and extending inland for more than 100 miles, is an unexplored area of 300,000 square miles entirely unoccupied save by one hundred Indians. . . . . The lot of a Naskapi is not a happy one. . . . . On snowshoes, the hunter wanders day after day on the lookout for such caribou as the Caribou God may send in answer to his prayers. . . . . When the caribou are not to be found, the Indians starve; often the men drop in their tracks."

In Frobisher's Footsteps

The expedition retraced the course of Sir Martin Frobisher, first explorer to venture the American Arctic, who made

three voyages between 1576 and 1578 under the patronage of Queen Elizabeth. Frobisher took back to England hundreds of tons of rock which he and his companions supposed to be gold ore, but which turned out to be worthless. At Kodlunarn Island, where Frobisher planned to found a colony, the museum party found the relics which the great captain had left behind some 350 years ago—house ruins, mining trenches, water reservoirs, fragments of supplies.

Strange natural phenomena

Among the natural phenomena which Dr. Roy observed, and describes, are the movement by ice expansion of great boulders weighing many tons; lakes domed with ice to an elevation of twenty feet or more above their summer water levels, Labrador "drift," and "quor water."

"A constant topic of conversation during the winter in Labrador is that of the 'drift.' The term 'drift,' as used by the natives, is not what we generally call snowdrift but is a living, moving mass of powdery snow dust that has been picked up and carried along by the wind. Very often it reaches a height of ten feet or more. No one dares to go out into it, for to do so is almost certain suicide. Objects within arm's length cannot be seen. In it one loses all sense of direction; pathways that may be followed on the darkest night become strange and unfamiliar. When accompanied by a strong wind it cuts like a sand blast and facing it is all but impossible. The dust is so powdery that it enters the very smallest opening and packs solidly inside the clothes. . . . . Geologically, this so-called 'drift' is a most effective agent of destruction.

Water that fails to freeze at 30° Below Zero

"Of all phenomena relating to ice and snow, the most interesting was the presence of fresh flowing water on the beaches and near-by areas at air temperature many degrees below freezing. This water is known locally as 'quor' water. What the term means is not known unless it be the degenerated form of the word 'queer,' but to find flowing water when even the swiftest brooks have frozen to a depth of a foot or more is perplexing. . . . . Apparently, it is some form of seepage from considerable depth below the level of the frozen ground, where circulation of water is possible. Yet it is difficult to explain why the water should collect in streams and flow out on the accumulated ice without freezing during emergence from such a depth at temperatures many degrees below the freezing point. . . . . Although 'quor' water is a great blessing as a source of abundant drinking water, it is also a real menace. Because of the constant seepage, the snow is kept so mushy that it is extremely difficult, and often impossible, to walk along the beaches, where the 'quor' water seems to be more prevalent than elsewhere. Wet feet, when the temperature is hovering around 30 degrees below zero, are likely to freeze without warning. The situation assumes serious proportions when 'quor' water enters dwelling houses.

Species named for prominent Chicagoans

In the technical portion of the book, Dr. Roy gives scientific descriptions of hundreds of fossils he collected. Included among a number of new species are four which he named "Receptaculites fieldi," "Westenoceras greggi," "Krausella rawsoni" and "Calymene macmillani" in honor respectively of Stanley Field, president of the museum, Major Clifford C. Gregg, director of the museum, the late Frederick H. Rawson, Chicago banker who sponsored the expedition, and Commander Donald B. MacMillan who commanded the expedition.

In addition to Dr. Roy and Dr. Strong, other members of the museum staff who were among the personnel of the expedition are Alfred C. Weed, curator of fishes and Arthur G. Rueckert, taxidermist. Joseph N. Field (son of Stanley Field), then a young boy, now an ensign in the United States Navy was a member of the expedition during the first summer, returning home with the supply ship when the rest of the party went into winter quarters.

BEAUTIFUL AND UNIQUE AGATES FROM TEXAS

By THOMAS A. REINER

If mineral collectors had a book, something along the lines of the stamp and coin catalogs to which they might refer regarding rare and beautiful agates, they would no doubt find some of the unique Texas material described among the front pages. For some of the Texas agate is not only beautiful and unique, but it is of a quality and character that will make them very popular among collectors. A description of one of these Texas agates in the writer's collection, a slab cut from the interior of a large nodule, could read as follows:

"It is 4½ inches long and 3¾ inches wide (the entire nodule weighed about 4 pounds and 12 slabs could have been cut from it). The base of the agate is a clear chalcedony spotted throughout with hundreds of doubly terminated quartz crystals ranging in size from minute up to ¼ inch long. Beneath the surface of the chalcedony the crystals seem to float in suspension and in all positions as if they had been caught and frozen in the matrix. The zone around each crystal is of various colors and in some cases is banded—like ... agate. In some cases the crystals show phantom crystals and between the outer and inner crystals is a white wall of crystalline quartz. Some of the crystals are covered with a yellowish-brown coating (limonite?) and from this coloring the clear chalcedony has the appearance of being yellowish. However, not all crystals are coated. Some are clear—in other cases the coating is partially removed, However, in the same agate, crystals of yellow, brown, red, black, white, and colorless are present. When the clusters of crystals are small, they resemble a poppy field. One of the most beautiful formations in one of these agates is the flower-like affect which forms the white coloring matter in the chalcedony. Upon inspection it was found that one of these flowers was in reality a great mass of crystals, perhaps fifty crystals in one small group, the ends sticking in every direction. In another instance, white crystalline quartz makes the flower. In all cases the crystals are doubly terminated, of different types, and in some cases, a nest of crystals can be seen with a "skin" around the entire group. These particular types of agates are different in each case, the coloring of the matrix, the color of the crystals and the designs they form. To the student of mineralogy there is no limit to what he can find to marvel at in a study of these agates.

Another agate which defies description is the picture agate. Now when you consider a picture agate perhaps you will associate it with a scenic agate. But the picture agate and the scenic agate are not at all alike. Consider yourself in an art gallery looking at oil paintings and you have the picture agate. The one that the writer has before him is of the following description: the slab, 3¾ by 3 inches, almost round, is called "The Terraces". It takes one immediately to Yellowstone Park and the terraces around Mammoth Hot Springs. On the lower right the terraces are shown in a series of step downs, five to be exact, and the coloring is buff. Coming over the terraces are streams of water shown in a light blue, and at the bottom of the terraces the water collects in large pools, shown in blue. However this picture differs from the terraces of Mammoth Hot Springs in that at the top of the terraces are two large steaming geysers shown in white, one about thrice the height of the other. Looking past the steps of the terraces, the color or background is cream with black beneath. This forms the front legs of an immense frog. Back of the frog is shown by the contour of the rock outside. The head of the frog is clearly shown, nose, mouth and eyes; its coloring is a dark gray, light gray, brown, red and cream. Beneath the head of the frog is the most beautiful head of a fox, clearly outlined from head to front shoulders. The eyes, ears, nose and the neck are shown in a reddish-brown.

This agate weighed about four pounds before cutting. Each of the slabs has been of a different design.

The Volcano, another of these picture agates, is a beauty to behold. Mr. Chas. E. Wilcox, 804 Wilcox Street, Hannibal, Missouri, has the original cut on this agate. Try and get it from him!

Not an agate but surely as beautiful, are the Texas Palms. The writer has one in which the cells have been enlarged to eyes, and the eyes are circular bands of chalcedony. The colors are white and cream, there are rings within rings.

The above agates occurring in all sizes and shapes, roll out of bentonite or volcanich ash deposits in the hills of a number of counties in South Texas—Jim Hogg, Star, Webb, Duvall, Live Oak and several others. The bentonite or volcanic ash deposits also contain the most beautiful petrified wood and plenty of it; porcellanite tuff also occurs and it, too, is very beautiful, in some cases, and often is marked with dendritic figures.

A REPORT ON THE ROEBLING OPAL

A rumor is being noised about the West Coast of the United States to the effect that the famous Roebling opal in the U.S. National Museum has gone bad. As this mineral was found in the Virgin Valley of Nevada, where one of our members, Mark M. Foster, is engaged in mining opal, it was thought best that an official report on the condition of the famous mineral be made public. Through an oversight the publication of the letter has been delayed. It is printed below

August 19, 1941

Mr. Mark M. Foster,
c/o Camp Sheldon,
Winnemucca, Nevada.

My dear Mr. Foster:

Receipt is acknowledged of your letter of August 3 requesting information concerning the condition of the large black opal acquired by the Museum as part of the Roebling Collection.

In response to your inquiry Dr. W. F. Foshag, Curator of Mineralogy and Petrology, furnishes the following statement:

"The large 17 oz. opal in the Roebling Collection was, in its original form, remarkably free of cracks for such a large mass. During the 15 years it has been in the U.S. National Museum there has been no detectable change in the mass and it appears to be in the same condition as when it originally came here.

"It is a rather square mass about ½ the size of a brick, pitch black in color, with broad flashes of red and green fire. The top and bottom show the original crust, the sides are fresh fractures. This is said to be the second largest mass of fire opal in the world."

Very truly yours,
A. Wetmore
Assistant Secretary
U. S. National Museum,
Washington, D.C.

We trust that this report may quiet the fears of those possessing fine specimens of Virgin Valley opal as specimens from this noted locality have been sadly abused at times.

Virgin Valley has no post office and at the time the above letter was written Mr. Foster received his mail through Camp Sheldon; as the Camp has been abandoned he now gets his mail at Denio, Oregon.

DON'T STOP ADVERTISING BUT ADVERTISE IN ROCKS AND MINERALS

Some Words of Advice to New Dealers

By MARK M. FOSTER

Since our good editor, Mr. Zodac, is too modest to toot his own horn about the value of advertising in *Rocks and Minerals,* I will sneak into his office while he is outside somewheres, lock the door from the inside, and will try to do a little horn tooting myself. Maybe in this way I can slip one by on him.

If you are a beginner at specimen dealing and you insert an ad in *Rocks and Minerals* for the first time, you may not make enough profit on the ad to pay its cost but if you keep on advertising so that "our gang" (the collectors) will know you are still in business then it will be that your clientele will begin to grow in proportion to the length of time you have been advertising and also in proportion to the quality or interesting features of the minerals, gems, or rocks you sell.

It is surprising at times how slow it is to get some really fine minerals introduced to collectors. Your ad may sound interesting to some collector who will say, "I'm going to get some of that material next pay day". If you are a r vice at mineral selling you might not, perhaps, run the ad the second month and the collector who was going to buy your mineral next pay day notices your ad did not continue and assumes you had only a limited stock and that it had become exhausted.

My experience after seven years prospecting for and dealing in mineral specimens is that it is a grave mistake to assume that one or two orders only on your first ad means that the money so spent was lost. Perhaps the two customers were living in some isolated villages and were the first and only collectors in the community at the time but now collecting has grown to such an extent it seems to me (being a dealer in constant contact with collectors) that everybody is a collector.

Now, after a few years, the collections of those two customers has grown so large, beautiful and interesting it has become the topic of the neighborhood. Friends and neighbors of these two collectors will drop in from time to time to see if anything new has been added to the collection. I know from personal experience how these neighbors react. "Well, well," they will enthuse, "I never knew until I began looking at your rocks how very interesting and beautiful the mineral kingdom really is!" I have seen many of these neighbors become enthusiastic collectors because they saw my collection and heard me explain the properties, uses, and interesting features of the minerals in it.

Very well, these newly converted collectors would like a piece of that min eral which you advertised only once (perhaps three years ago) and they ask one of the pioneer collectors where he got it. He gives them your name and address and you will be surprised to find orders coming in for the mineral you advertised three years before (only one insertion) and you will perhaps wonder why every one is wanting it now when you could not sell it before. So you see the ad has paid big in an indirect way but that one ad was the impetus that created the landslide, so if you intend to remain in the business keep your ads going. Today's ads will bring business next year and year after next and so on.

I once wanted to buy some polishing powder that a dealer who advertised in *Rocks and Minerals* regularly had sent me samples of (which I laid aside and did not try out for a year). I tried the generous samples sent me because my supply of tin oxide was exhausted and was so very much pleased with them that I wanted to buy more badly. However, the dealer had dropped his ad in *Rocks and Minerals* and I figured he had gone out of business. After three years

I learned that the dealer did not go out of business but had shifted his advertising to another magazine not so widely circulated among mineral collectors and amateur lapidists. Perhaps I was one of the hundreds who has had similar experience, besides the hundreds of new friends he would have made for his very excellent product had he realized it. It is the indirect results that come long after he advertises that counts, not necessarily the immediate results.

Once more—I was at one time selling one mineral only and in wholesale lots. After circularizing the biggest dealers advertising in *Rocks and Minerals,* I still had 150 pounds left which had to be disposed of. I remembered a Mr. E., an erstwhile advertiser, had once written me an inquiry about this very mineral so decided to write him to see if he was still in business and could use the material. What a coincidence! His reply to me read: "I've been trying everywhere to get this mineral and as you had quit advertising supposed you had also quit selling minerals. Ship me the 150 pounds at once!"

If you continue in business your clientele will soon begin to drop in on you, personally, to inspect your stock and to make purchases. The first two or three calls they may be alone but later will bring friends along. The clientele of personal friends will be large enough to keep you in business but don't stop your advertising because, by now, the collections of your personal acquaintances are quite complete and they have begun to specialize; you need the beginner collector in your new clientele for future business and he needs you.

INVISIBLE GASES MADE VISIBLE

Specimens that, from their nature, are actually invisible, may be *seen* by visitors to Field Museum of Natural History, Chicago, Ill., it was announced recently by Major Clifford C. Gregg, director.

The museum's department of geology has encountered and solved the problem of exhibiting five rare gases which are present in the air in minute quantities, and which are as absolutely invisible as the principal components of the air, oxygen and nitrogen. A bottle filled with rare gases—argon, neon, helium, krypton and xenon—would appear to be empty, says Henry W. Nichols, chief curator of geology. Therefore, although it is impossible to show them in their normal state, an exhibit is possible because they all can be made to glow with brilliantly colored light when they are excited by an electric current.

In the exhibit the museum visitor, confronted with a row of apparently empty tubes, merely presses a button and the tubes light up in beautiful colors.

"These rare gases," says Mr. Nicholas, "are peculiar in that they cannot be made to enter into any chemical combination. The most abundant, argon, is found in the air in the proportion of one part argon to 125 parts air, and the most rare, xenon, is present only in the proportion of one part xenon to 1,700,000 parts air. Rare as they are, these gases have an important commercial value, for they produce the light of the numerous neon lights seen at night along many of our city streets."

AMERICA COMES FIRST!

Due to the unsettled conditions throughout the country and the difficulty in obtaining paper and other supplies, *Rocks and Minerals* is having much trouble in coming out on time. Future issues may be greatly delayed, perhaps a week or more, but we will rush them whenever possible. America comes first! —and *Rocks and Minerals* wants to do its share.

NOTES ON A CORUNDUM LOCALITY IN WESTERN NORTH CAROLINA

By KENT C. BRANNOCK

In the southeastern corner of Madison county, North Carolina, is a large dunite mass in which the Carter corundum mine is located. A small amount of corundum was mined there in the latter part of the nineteenth century, and numerous prospect pits were dug. There has been no active mining at the locality since 1890, except for olivene which has been taken recently from a pit some 50 yards from the corundum deposit.

In the various dumps of the prospect pits, in the bed of the small creek which flows through the valley, and in the dunite outcrops, the author has found the following minerals:

Corundum and Spinel: On the dump of the main opening pink and white corundum is abundant. It is intergrown with massive spinel which is dark green in color. In thin section the spinel shows a beautiful emerald green color. Some feldspar and chlorite are found along with the corundum on the dump. In the creek bed one small corundum crystal, pale yellow and partly transparent, was found. All of the corundum is distinctly striated as a result of polysynthetic twinning.

Olivene: This mineral makes up most of the dunite body. It is fine-grained, and varies in color from light green to almost black.

Chromite: This is found abundantly in small crystals and grains scattered through the olivene, and in the sand of the creek bed.

Ilmenite: Associated with oligoclase, ilmenite was found at several of the dumps in small masses having an indistinct crystalline structure, and in nodules up to 2 inches in diameter.

Serpentine: Easily obtained in the exposed dunite and on some of the dumps of the prospect pits. Some was found which showed a fine green color, and was hard enough to take a good polish. Deweylite was found sparingly.

Feldspar: A feldspar, which is probably oligoclase, was found at one opening in masses which are easily cleavable. It posesses a brilliant luster, and is white and transluscent.

Muscovite: A small amount of well crystallized muscovite was found which is purple by transmitted light.

Several other minerals have been found in the Carter Mine dunite, some sparingly, and others abundantly, most of which can be found by persistent searching. Among them are actinolite, hyalite, chalcedony, aragonite, and magnesite.

The size of this dunite makes it possible for one to spend days there without covering it completely. One day's search, however, will certainly turn up a number of good specimens.

The Carter Mine can be reached as follows:

Go to Stocksville on U.S. highway No. 19, and No. 23, approximately 12 miles north of Asheville, N.C. Proceed east to Democrat on state highway No. 197. In Democrat turn north on a dirt road, and proceed for about 1½ miles. (In so doing, the Line between Buncombe and Madison counties is crossed. The mine is in Madison county, on Holcombe Branch, about ⅓ mile from the Buncombe county line.) The dunite is some 100 yards east of this road, but it will probably be necessary to inquire at some farmhouse, either for the Carter Mine, or the olivene mine, as it is difficult to locate.

KENT C. BRANNOCK.

Editor's Note: The author of this very interesting article has promised *Rocks and Minerals* that he will prepare for it a number of short papers on minerals and their localities of North Carolina and Virginia. We shall look forward with much pleasure to the arrival of the next article from Mr. Brannock.

A MYSTIC STONE

By MRS. LILLIAN STICKNEY

Those familiar with the legends connected with various stones well know that of the staurolite, those mystical crystals in the form of a cross which legend says are the tears shed by fairies when they heard of the crucifixion of Jesus on the cross. But to this day, the staurolite continues a mystic stone and to those who search new wonders appear.

Around Charlestown, N. H., staurolite is quite common but it is seldom a cross is found. The simple straight crystals, altered to chlorite, are frequently found, and if cut and polished often reveal strange forms hidden within. At Christmas time, 1941, we cut and polished one in the form of a brooch cabochon to be given as a Christmas gift to an old lady friend for a brooch. What was our amazement when polishing to find revealed in one corner a perfect five pointed star, a bright golden star on the dark green chlorite matrix! Truly an emblem of Christmas to a war ravaged world.

A few days later a small boy living near insisted on bringing to us a stone he had found, having visited us often with his mother and seen our collection of minerals and stones. His mother to pacify him allowed him to come again bringing the "tone" as he proudly called it.

Again we were amazed on looking at the stone to find a piece of mica shist in which were embedded two staurolite crystals in the form of a "V", a V for Victory! and brought us at the time of the Japanese assault on Pearl Harbor, but we were greatly surprised later, when on polishing down the stone to have revealed another staurolite directly under the V, on which were characters resembling Japanese hieroglyphics. Truly staurolite is a mystic stone.

A LETTER TO THE EDITOR

Editor "R & M":

I have read with a great deal of interest Mr. Earl Floyd's excellent and interesting notes on Trinidad, Colorado, in the January issue of Rocks and Minerals. He has a lot to write about and has done a swell job.

It happens that I had charge of the drilling of six of the eight helium wells at Model dome, south of the town of Thatcher, and I thought it might interest Mr. Floyd to know that in actual plant practice we recovered 8 percent helium, 15 percent carbon dioxide and 77 percent nitrogen. This is the highest known helium content of any gas ever discovered, not only in the United States, but the whole world. The helium wells and the Thatcher plant were sold in 1937 to the United States government under an act of Congress making the helium industry government monopoly.

A well drilled on Red Rocks dome, south of La Junta, Colorado, developed an inert gas which carries about 7% helium. This well is located about 20 miles east of Thatcher. There is reason to believe that the radiating Spanish Peaks dike system of which Mr. Floyd speaks may have had a lot to do with the concentration of inert gases in nearby anticlinal structures. One of the dikes cuts across the south end of Model dome.

Analyses of gases have been made in practically all the gas fields of the United States and in some fields in foreign countries and it has been found that gases carrying appreciable amounts of helium are found in areas of deep-seated faulting. It is thought by some geologists that faulting which extends down into the crystalline rocks may have released original atmosphere entrapped in the rocks at the time the earth was formed and that the released gases have traveled upward along fault planes to reservoirs of sandstone, some of which may be charged with hydrocarbon gases as at Amarillo, Texas.

The theory mentioned above is not generally accepted but no one has ever, to my knowledge, advanced a better one. While the theory does not fit all of the observed facts, it comes nearer to them than any other theory I have heard advanced.

C. E. Shoenfelt
Denver, Colo.

LAPIDARY KINKS

DISPLAY OF POLISHED GEMS

By WILLIAM J. BINGHAM

A number of schemes have been proposed and used in exhibiting the work of amateur lapidaries none of which have been entirely satisfactory. Below are described two ways in which faceted gems and cabochons may be mounted for display.

Scheme No. 1. Suitable for faceted stones or cabochons.

Cut four armed stars from 7/8" squares of approx. 1/32" thick soft copper or brass, drive a 3/4" or 1" nail thru the center of each and solder the head to the center of star. Bend arms as shown in the sketch and kink to fit gem. These holders should be painted black so as to be inconspicuous.

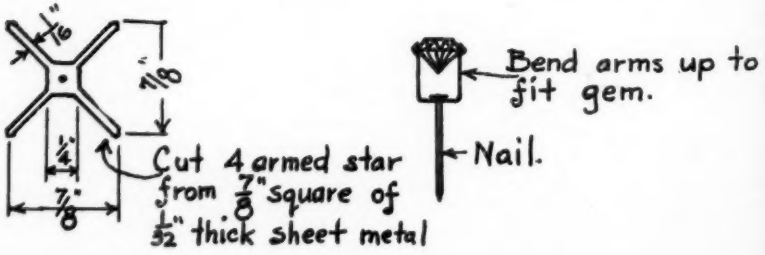
The holders can be mounted by pushing the nails into a piece of 1/2" thick (or more) soft insulating board which should also be painted black. This board can be made to fit in a box for portable exhibits or made any size to suit the tastes and requirements of the individual. By arranging the holders in a definite pattern a missing stone can be noted immediately and yet they can be handled and inspected very rapidly. They can also be removed and replaced very easily.

Scheme No. 2. For mounting cabochons or slabs that are flat on the back.

The cabochons, etc., are arranged in some definite order and are fastened to approx. 1/32" thick sheet celluloid or other plastic of suitable color and smooth texture with small pieces of pressure sensitive (Scotch) double coated tissue tape. The plastic sheets can be of any convenient size, 6" x 8" has been found to be a good size. The double coated tape is obtainable in rolls at most paper or printers supply houses and the 1/2" width is suggested. Cut the tissue to cover about 50% to 75% of the back of the stone taking care not to get finger-prints or dust on the sensitive surface. The individual stones can be removed and replaced many times if the sensitive surface is kept clean.

Labels can be typed or printed on paper and fastened to the plastic sheets with transparent Scotch tape (obtainable in 5 and 10c stores, etc.).

This scheme makes a good way to display cabochons since they can be removed from the sheet at will and yet will stand a good deal of handling and inspection. If nicely arranged and labelled it will make an extremely interesting collection.



Sketch showing method for mounting faceted stones.

Collectors' Tales

NOTE PAID WITH INTEREST

Several years ago, we made some oil prospecting trips to an area near a crossroads in West Virginia. The storekeeper was a very grasping stingy, beastly kind of a critter. On our first trip we inquired from him if we could get supper, lodging and breakfast at his home.

"Yes sir," he said "and you must pay ME and me only."

We did, wondering why it was that he wanted to be sure that he, himself, was to get this money. We had occasion to stay at his house often, and this usual 'pay ME only' business was in order. It was indeed a very good place to stop. His wife would bake bisculits that were something to talk about, and we had delicious country ham, plenty of fresh eggs, mashed potatoes and pie. Now you should have seen that fellow eat biscuits and pie!

On what we believed was our last trip, he was called to the store before we had finished our meal, so we thought we would ask his wife to tell us about this 'pay ME only' business.

"Haven't you figured that man out yet?" she said.

"No, what about him," we inquired. Here is the story she told us.

"I was a widow with $500.00 in cash that was left of my first husband's estate. This fellow courted and married me, borrowed $500.00 to enlarge his store and promised to pay the interest and some of the principal each year so I would have some money to spend. He kept the payments up for a while and then quit. If he has occasion to go to the county seat or any other place, he locks the store. I cannot beg, borrow, nor steal a penny from him. What shall I do with the stingy old cuss?"

"This problem is beyond us," we said, but at the same time thinking how eager he was for his biscuits and pie, we told her to refuse him something that he most desired until he paid her some money on the note.

We finished our meal, leaving her still sitting at the table in a perplexed and maybe Mephistoian thought.

About a year later we returned and as usual presented the money to the storekeeper.

"Just go on over to the house and give it to the Missus," he said. When we gave the money to the "Missus" we inquired, "What's happened now?"

She, with a Mona Lisa smile, said, "I also got the balance of my $500.00 back with interest.

We are still wondering just how long he had to do without biscuits and pie.

—Walter S. Amos

WATCH FOR THEM!

Two very interesting articles have been submitted which we feel sure will go over big with collectors. One is by Fred Dustin of Saginaw, Mich., and it covers just what its title says: "Mineral collecting in unpromising localities."

The other is by Horace W. Slocum whose home address is Rochester, N. H., but who is at present down in Sarasota, Fla. His article, "Look around before you leave!" has some pleasant surprises in store for readers.

We hope to print both articles in the March issue of *Rocks and Minerals*. Watch for them!

Clubs Affiliated With the Rocks and Minerals Association

ARIZONA

Mineralogical Society of Arizona
Geo. G. McKhann, Sec., 909 E. Willetta Street, Phoenix.
Meets at the Arizona Museum in Phoenix on the 1st and 3rd Thursday of each month.

CALIFORNIA

East Bay Mineral Society
Miss Marjory Welch, Sec., 3268 Central Avenue, Alameda.
Meets on the 1st and 3rd Thursdays of each month (except July and August), at 8:00 p.m., in the Lincoln School Auditorium, 11th and Jackson Sts., Oakland.

Northern California Mineral Society
A. L. Rogers, Sec., 137½ Joost Ave., San Francisco.
Meets on the 3rd Wednesday of the month at the Public Library in San Francisco.

Southwest Mineralogists
Mrs. Pearle Arnold, Cor. Sec., 2132 W. 76th St., Los Angeles.
Meets every Friday at 8:00 p.m. at Manchester Playground, 88th and Hoover Sts., Los Angeles.

COLORADO

Canon City Geology Club
F. C. Kessler, Sec., 1020 Macon Ave., Canon City.
Meets on the 1st and 2nd Saturdays of each month at 9:00 a.m. in the High School Building, Canon City.

Colorado Springs Mineralogical Society
Lynn M. Hopple, Sec.-Treas., Motor Route 2, Colorado Springs.
Meets usually at the Lennox House, Colorado College Campus, Colorado Springs, on the 2nd Monday, of each month at 7:30 p.m.

CONNECTICUT

Bridgeport Mineral Club
Mrs. Julia Walker, Sec., 55 Eaton Street, Bridgeport.
Meets in the Bridgeport Public Library on the 3rd Monday of the month.

Long Hill Mineral Club
Eugene F. Robinson, Sec., R. F. D. No. 4, Box 237, Bridgeport.
Meets on the 4th Tuesday of each month at 8:00 p.m., in the Hawley Memorial Library, Long Hill.

Mineralogical Club of Hartford
Mrs. L. T. Goodrich, Sec., 51 Jerome Avenue, Bloomfield.
Meets the 2nd Wednesdays of each month. at 8:00 p.m.. at 249 High St., Hartford.

New Haven Mineral Club
Mrs. Lillian M. Otersen, Sec., 16 Grove Place, West Haven.
Meets on the 2nd Monday of the month at the Y. W. C. A. on Howe St., New Haven.

IDAHO—OREGON

Snake River Gem Club
Margaret L. Hearn, Sec., Payette, Idaho.
Meets alternately in Payette and Ontario, Oregon, (two small cities on the Snake River) on the 3rd Tuesday of every month.

ILLINOIS

Junior Mineral League
William Dacus, Sec., Morgan Park Junior College, 2153 W. 111th St., Chicago.

MAINE

Maine Mineralogical and Geological Society
Miss Jessie L. Beach, Sec., 6 Allen Avenue, Portland.
Meets last Friday of the month at 8 p.m., at the Northeastern Business College, 97 Danforth Street, Portland.

MARYLAND

Natural History Society of Maryland
2103 N. Bolton Street, Baltimore.
Office hours, Tuesdays and Fridays, 10:00 a.m. to 5:00 p.m.

MASSACHUSETTS

Boston Mineral Club
Mrs. Grace G. Dearborn, Sec., 40 Mt. Vernon St., Cambridge.
Meets on the 1st Tuesday of the month at 8:00 p.m., at the New England Museum of Natural History, 234 Berkeley St., Boston.

Connecticut Valley Mineral Club
Leo D. Otis, Sec., 12 Clark St., Westfield, Mass.
Meets on the 1st Tuesday of each month at 8 p. m. at various institutions in the Connecticut Valley.

MISSOURI

National Geologist Club
Mrs. D. P. Stockwell, Pres., Mt. Olympus. Kimmswick.

NEVADA

Reno Rocks and Minerals Study Club
Mrs. Rader L. Thompson, Sec., Box 349, R2. Reno.
Meets on the 1st Wednesday of each month, at 7:30 p.m., at the Mackay School of Mines, Reno.

Western Nevada Mineral Society
Miss Helen Griffing, Sec., 231 Mary St. Reno.
Meets on the 2nd Wednesday of each mo[illegible] at 7:30 p.m., at the State Bldg., Reno.

NEW JERSEY

Newark Mineralogical Society
William E. Simpson, Sec. 308 Grove Street, Montclair.
Meets on the 2nd Sunday of the month at 3 p.m. at Junior Hall, corner Orange and North 6th Streets, Newark.

New Jersey Mineralogical Society
O. B. J. Fraser, Sec.-Treas., 27 Stoneleigh Park, Westfield.
Meets on the 1st Tuesday of the month at 8 p.m. at the Plainfield Public Library.

NEW MEXICO

New Mexico Mineral Society
R. M. Burnet, Sec.-Treas., Carlsbad.

Society of Archaeology, History and Art
Carlsbad.

NEW YORK

Chislers, The
Miss Evelyn Waite, Sponsor, 242 Scarsdale Road, Crestwood, Tuckahoe.

Queens Mineral Society
Mrs. Edward J. Marcin, Sec., 46-30—190th Street, Flushing.
Meets on the 1st Thursday of the month at 8 p.m. at 8501 - 118th St., Richmond Hill.

OKLAHOMA

Oklahoma Society of Earth Sciences
W. P. Smiley, Sec.Treas., 229 W. Jefferson Street, Mangum.
Meets on the 2nd Tuesday of each month, at 7:30 p.m., at the Historical Museum, Mangum.

PENNSYLVANIA

Thomas Rock and Mineral Club
Mrs. W. Hersey Thomas, Pres., 145 East Gorgas Lane, Mt. Airy, Philadelphia.
Meets on the 3rd Friday of each month, at 8:00 p.m., at the home of its president, Mrs. Thomas.

VERMONT

Mineralogical Society of Springfield
Victor T. Johnson, Sec., 11 Elm Terrace, Springfield.
Meets on the 3rd Wednesday of each month at 8:00 p.m. at the homes of members.

WASHINGTON

Gem Collectors Club
Mrs. Lloyd L. Roberson, Sec., 522 North 70th Street, Seattle.
Meets on the 1st and 3rd Tuesday of each month (except during the summer) at 8:00 p.m., at the Y. M. C. A.

Washington Agate and Mineral Society
Monroe Burnett, Sec., 802 S. Central St., Olympia.
Meets on the 1st Monday of the month, at 7:30 p.m. at the home of some member.

Wisconsin Geological Society
Paul Ziemke, Sec., 2032 W. Keefe Ave., Milwaukee.
Meets on the 1st Monday of each month at 8:00 p.m., at the Public Museum in Milwaukee.

Field Fables of "Rocky" Moore

So minny folks has ritten me fer further infamashun sence I printed thet storry about thet peterfide tree, I am gonna tell yew about anuther New Find me an' Hog-Hed Hogan run down back in '98. It's amazin! We wuz jist south uv Lost Springs; a little East uv Fergottin Valley in the Disremember Mountings. We wuz out huntin' "Chuck" an' "Waller" (dems my burrers) whin we kum out between two cliffs into a narrer dry-wash face to face with a Afrikan Lian about to spring at us. Behint him wuz a saber-tooth Tiger an' whut looked like a Pvthon-Snaik hangin frum a tree. Hog-Hed levelled his gun an' fired! I attacked the nearest one with my stabbin-knife. The durned varmints never flinched or moved. They cudent! They wuz peterfied! The whole place wuz peterfied! The leaves on the trees wuz peterfied. We even picked sum petrefied strawberries an' a bokay uv peterfied flowers. A little further in we kum acrost a peterfied man fishin with a peterfied poal an' danged ef a peterfied fish wuzent hung to his line. Apparently sum rare condishun uv Nature caused whut us Outstandin Mineralogists refers to as "Instant Peterficashun". It rite nigh cot Hog-Hed an' me! We commenst gittin numb all over an' barely got out alive. Hog-Hed swears to this day his joints ossifide an' he aint bin able to work a lick sence. All he kin do is eet—whin he kin git it! Yore's trooly—"Ol' Rocky"—Awthur.

Club and Society Notes

New York Mineralogical Club

American Museum of Natural History, New York, N. Y., Wed., December 17th, 1941. Meeting called to order at 8:15 *P.M.* Attendance: 50.

Education Committee Report: Dr. Pough announced the program for the Saturday afternoon classes to be given this winter as follows:

Date	Subject	Speaker
Jan. 10	Introduction	Pough
Jan. 17	Properties	Northup
Jan. 24	Properties and blow pipe analysis	Northup & Lee
Feb. 7	Crystallography	Pough
Feb. 14	Paragenesis	Pough
Feb. 21	Paragenesis	Pough
Feb. 28	Identification Clinic	Pough

Classes will start at 2:30 P.M. and end at 4:30. The first ones will be in room 205 in the school service and education building. The two on paragenesis will be held largely in the mineral hall and the identification clinic in the laboratory. These classes are open only to members in good standing (unless it develops that there is room for a few more).

Mr. Martin Ehrmann: presented a motion that the treasurer be instructed to omit the collection of dues from members now in the army, navy or air service. Fassed and so ordered.

Mr. Trainer: then introduced the speaker, Mr. Leo Neal Yedlin, a member of this club and Vice-President of the Maine Mineralogical and Geological Society whose subject was "Collecting Minerals in Maine" The Maine pegmatites of chief mineralogical interest are located in the area in and around Topsham, Norway and Rumford. There are only two workings of importance now operating—one at Newry for pollucite and the other at Topsham for feldspar.

Localities

I. Topsham: Near the town of Brunswick—quarries are just off the road, about 80 pits. 2 main ones—the Fischer & the Maine Feldspar Co. workings.
Minerals found Pale blue topaz.
Sharp twinned herderite crystals—remarkably large.
Bladed biotite converging in feldspar with small crystals of samarskite and monazite in between.

II. Greenwood: Shells or casts of small quartz crystals somewhat similar to the anhydrite cavities from Paterson, N. J. These are believed to be after analcite or heulandite but may also be after pollucite and bertrandite.
Also splendid tabular apatite crystals, both white and pale blue, and gemmy purple apatite, as well as bertrandite.

III. Newry: was first worked for tourmaline, is now worked for pollucite. Was famous for green and red (watermelon) tourmaline.
Now findings: Triphyllite and purpurite —heterosite, pollucite recently: rose quartz crystals.
The workings are actually 10 miles from town of Newry—permission must be obtained at the company offices at West Paris. Collectors are not admitted on Sundays.

IV. Mt. Apatite—formerly worked for potash spar—splendid gemmy purple apatite crystals were formerly found at the Pulsifer quarry. Recently excellent lepidolite crystals have been found on the old dumps.

V. Black Mt. at Rumford—no permission needed. Large radiating crystals of
rubellite in lepidolite
caesium beryl
eosphorite
childrenite
uraninite

VI. Non-pegmatite localities.
A. Minot:—splendid large brown garnet crystals in the rock taken out of a road cut—found recently.
B. Standpipe Hill: large biotite crystals.
C. Sanford: Splendid vesuvianite crystals —no longer obtainable.

VII. Ruggles Mine at Grafton N. H.
Dendritic uraninite and gummite in feldspar with lesser amounts of cyrtolite or zircon).

A rising vote of thanks was extended to the speaker.

Specimens of all of the minerals mentioned above were exhibited and many small specimens were given to those wishing them.

Mr. Trainer announced that henceforth an attempt will be made to have a member exhibit specimens, equipment, etc., of particular interest at each meeting. The first was Mr. Jay T. Fox who exhibited selected micro mounts and a rotating stage for holding several mounts at once, designed by him.

The meeting was adjourned at 9:15 p.m. to permit the members to examine the specimens.

M. Allen Northup, Sec'y.

The Chiselers

A regular meeting of the club was held on Dec. 12, 1941, at the home of Jane and Bubbles (Crestwood, N. Y.) at 7:30 p.m. Miss Waite, our sponsor, presented each member with a nice thunder-egg, some interesting pieces of petrified wood, slabs and limb-sections, and equally interesting geodes. The thunder-eggs were given Miss Waite by a young man who had recently returned from the West—one each for every girl in the club.

The minutes were then read and accepted. Janet Otto read the treasurer's report. We were then informed by Miss Waite that she had found the club pins in case anybody wanted one. Miss Waite also said that she had heard that schools in New York City were requesting small collections of minerals for study purposes; it was decided that the club would make up such a collection.

Miss Waite then read to us an article by Mr. James G. Manchester which appeared in the December, 1941, issue of *Rocks and Minerals* and told us how she and her young niece, Betsy, had seen the actual minerals photographed throughout the long article. (A number of minerals from her collection which included several cut and polished specimens and rough minerals which Mr. Manchester had given her were on display).

Another article was also read from *Rocks and Minerals* which told about our exhibit last year. The meeting was then adjourned.

A game pertaining to minerals was played and Ruth Otto won the prize with a score of 100%.

Refreshments were then served to end a very enjoyable evening.

Respectfully submitted,
Georgiana Reynolds, Secy.

Newark Mineralogical Society

The 204 meeting of the Society was held in the Brewster room, Junior Hall, 468 Orange St., Newark, N. J., on Sun., Dec. 7, 1941. The President, Mr. Welsh, presided.

The following officers were elected for 1942:
President, Mr. Vincent Giordano.
Vice-President, Mr. Geo. E. Carpenter.
Secretary, Mr. Louis Reamer.
Treasurer, Mr. Leonard A. Morgan.
Trustee, Mr. R. P. Milburn.

The program for the afternoon were talks on Barium minerals. Mr. Reamer and Mr. Milburn delivered papers jointly.

The 205th meeting of the Society was held at Junior Hall, on Sun., January 4th, 1942.

Sixteen members and guests were present.

The President, Mr. Giordano, presided. The program for the day was a very interesting talk by the former President, Mr. Welsh, on Crystallography. He explained in simple detail the types and forms of crystals as well as the causes and sources of their formation; the talk was one of the best in recent years.

Louis Reamer, Secy.

New Jersey Mineralogical Society

A regular meeting of the Society will be held on Tues., Feb. 3rd, 1942, at 8:00 p.m., in the Plainfield Public Library, Plainfield, N. J. The program will cover an illustrated talk on collecting minerals in South America by Dr. Paul Kerr, Dept. of Geology, Columbia University, New York City. Dr. Kerr has recently returned from South America where he visited many interesting mineral localities.

With Our Dealers

B. Lowe, of Chicago, Ill., has moved to St. Louis, Mo. (P. O. Box 311). He is offering some nice zircons and opals in this issue—look his ad up!

C. L. Brock, proprietor of the American Mineral Exchange, 212 Pacific Ave., Houston, Texas, sent us a very attractive post card photo of the San Jacinto Monument and Museum in his city. Incidently the card bore an interesting post mark—San Jacinto Monument, Texas, Jan. 1, 1942.

Ward's Natural Science Est., Inc., 298 Goodman St., North, Rochester, N. Y., have just issued a new price list under the name of "Mineral Collectors' Catalog". It is 39 pages in length with 11 illustrations and features alphabetically many fine minerals (pp. 4-19); mineral specimens for study (pp. 20-25); fluorescent lamps and minerals (pp. 26-31); mineral collections (pp. 32-33); mineral supplies (pp. 34-36); and books (pp. 37-39).

If your name is not on their mailing list then send it in today so that a copy of this very attractive catalog may be sent you.

Bibliographical Notes

Minerals of Arizona: By F. W. Galbraith.

Arizona is noted for a large number of interesting minerals, some gorgeous in their coloring others noted for their rarity. Although the State has issued a number of bulletins on its minerals and their localities, the present bulletin by Mr. Galbraith is the most complete and up-to-date.

It is a pleasure to recommend *Minerals of Arizona* which came out recently as Bulletin No. 149. It is an 82 page, 6x9 publication with a gray cover. The minerals are arranged according to Dana's System—native elements, sulphides, etc., and listed by counties. The bulletin will be of special value to collectors as it is almost entirely (74 pages) devoted to Arizona minerals and their localities.

Issued by the Arizona Bureau of Mines, Tucson, Ariz. Price 50c per copy (free to residents of Arizona).

Geology of the Willsboro Quadrangle, New York: By A. F. Buddington and Lawrence Whitcomb.

The Willsboro Quadrangle is mainly in the northeastern part of New York with a small portion in Vermont. Only that portion which is in New York is covered by the report.

A number of interesting minerals occur in the Quadrangle of which garnet and wollastonite are of chief importance.

The bulletin contains 137 pages, 46 figures and one geologic map in color (in pocket).

Issued by the New York State Museum, Albany, N. Y., as Bulletin No. 325.

Engineering Geology of the Delaware Aqueduct: By Thomas W. Fluhr.

Most of our readers remember the long and very interesting article "Geology of the Lincoln Tunnel" by Mr. Fluhr which ran through four issues of *Rocks and Minerals* (April to July, 1941). The present article is even longer as it consists of 36 pages with 7 illustrations. It is a most interesting presentation of the geology of the many rock formations cut through by the long tunnel of the aqueduct and we do hope that many of our members will read it (Mr. Fluhr is also one of our members).

The article appeared in the Third Quarterly Issue, Vol. 27, 1941 (pp. 91-126 of *The Municipal Engineers Journal,* 29 W. 39th St., New York City. (50c per copy).

Collector's Kinks

MOUNTING MICA SPECIMENS

Many mica minerals, especially muscovite, contain inclusions of garnet, epidote, tourmaline, etc., and when cleaved very thin form most interesting specimens. Unfortunately, these thin sheets are often difficult to handle without injury to them.

Dr. L. Prescott Brown, of Albany, N. Y., mounts his specimens between punched sheets of thin cardboards. For small sheets of mica, 3x3 inch cardboards are used, larger sheets require larger cardboards—and three cardboards are needed for every sheet of mica. His method of mounting is as follows:

A mica sheet is first laid upon one of the cardboards—centered as closely as possible—and its outline traced with a pencil; this traced outline is then cut out with a knife or scissors and the mica inserted in the hole made. The other two cardboards then have identical holes cut out in their centers—the holes may be of any shape, oval, circular, square or rectangular, but smaller in size then that of the first. Then the first cardboard with its mica sheet is inserted between the other two and the three glued or pasted tightly together. The name of the mineral and its inclusion together with that of the locality may be written out in ink on one side of the cardboard. These mounts may be filed away in boxes or attached to some small stand and then placed in the cabinet.

With care a mica may be mounted so that its inclusion, or the best of them, may occupy the center of the opening of the cardboard.

The inner cardboard is used to hold the mica sheet firmly in place, thus preventing the sheet from slipping which it might do otherwise.